Embedded Automation Controller BOX

USER MANUAL

Version: 1.4

IS81EAC-201   Intel QM67 / Core i7-2655LE with 2
                     Isolated Serial Port Controller

REVISION HISTORY

REVISION	AUTHOR	DATE	DESCRIPTION
1.4	Jovi Hsu	March 7,2013	IS81EAC-201

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IMPORTANT SAFETY INSTRUCTIONS

Please read these instructions carefully before using the product and save for later reference.

Follow all warnings and instructions marked on the product.

Unplug this product from the wall outlet before cleaning. Clean the product with a damp soft cloth. Do not use liquid or aerosol cleaners as it may cause permanent damage to the screen.

Do not use this product near water.

Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.

This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.

This product is equipped with a 3-wire grounding type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature.   If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. (For AC version only)
Do not defeat the purpose of the grounding-type plug.

Do not allow anything to rest on the power cord.   Do not locate this product where persons will walk on the cord.

Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock.   Never spill liquid of any kind on the product.

Do not attempt to service this product by yourself, as opening or removing covers may expose you to dangerous voltage points or other risks and will void the warranty.   Refer all servicing to qualified service personnel.

Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

When the power cord or plug is damaged or frayed.

If liquid has been spilled into the product.

If rainy or water has been exposed to the product.

If the product does not operate normally that the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.

If the product has been dropped or the cabinet has been damaged.

If the product exhibited a distinct change in the performance, that indicates a need for service.

Packaging List

This product is shipped with the items list below. Please make sure that all are in your package.

Item	Description	Note
	1 pc of Mainboard User Manual according to what model you ordered.	
	1 pc of EAC System User Manual.	This manual you are reading.
	1 pc CD for System Driver Utility.	
	1 pc AC to DC Adapter w/ Standard Power Cord for Power Supply.	

Optional Accessories

Item	Description	Note
	1 pc of CD for Recovery CD for Operation System (Windows 7 Embedded or Windows 7 Professional Embedded).	Optional with Windows 7 embedded or Windows 7 Professional Embedded pre-installed.
	1 pc of Windows 7 embedded or Windows 7 Professional Embedded Recovery Users Guide.	

Contents

CHAPTER 1
General Information

Chapter 1 General Information

The EAC (Embedded Automation Controller) is high performance, fanless, low power consuming computer. The EAC is designed with wide temperature ranged, Anti-shock, Anti-vibration, isolated RS232/422/485 serial ports, wide voltage range power input acceptable, and anti-corrosion protection. The EAC is born to the demands of maritime applications as navigation, ship automation, surveillance, rugged industry and light military applications.

All product designs follow IEC-60945 Maritime Navigation and Radio-communication Equipment and Systems requirements.

1.1 Features about the Embedded Automation Controller

Here are features of Embedded Automation Controllers:

Fanless, Low Power CPU with Versatile Functions

The EAC with Intel Core-i7 3655LE / QM67 Chipset that delivers the most performance per watt available in embedded computing systems. It's a PC-based system with DDR3 RAM, HDMI port, multi-COM port interface, and on-board 10/100/1000 Mbps Ethernet, USB port. It is a compact design to meet the demanding performance requirements of most applications.

Wide Voltage Input Range and Isolated Power Input

For marine and transportation power source characteristic, our displays use wide voltage range from 9 to 36V input acceptable with isolation resistance at 1.5KV DC. 12V and 24V DC input are also available.
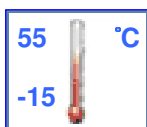
Wide Range Operating Temperature

With excellent design on heat dissipation, the EAC could bear more critical environment condition in temperature. This range is from 55°C to -15°C. Based on this feature, the EAC could meet most of the requirement of marine time applications.

Anti-Shock and Vibration

With anti-vibration and shock mechanical design makes our EAC solution enhanced shock and vibration resistance.

PCMCIA Connector

The EAC reserved PCMCIA for extension function use.

Isolated Serial Ports with RS232/422/485

For mostly used connection of peripheral devices, the EAC provides rich serial ports for NEMA compliance device, like GPS, ARPA, Gyro…etc. And for protecting these devices from been surge voltage, isolated serial ports provide 2.5K DC protection by Auto-isolator technology to protect expensive devices.

Customize your products

Base on our well-experience modulated competence, we can do very flexible and tailor-made design fulfilling any of customer's solution. For different panel characteristics, mechanical design, and electronic component, we can make it for you.

Approved EAC

Winmate EAC designs are all followed IEC-60945 Maritime Navigation and Radio- communication Equipment and Systems requirements.
The EAC series consist in different platform of industrial computing. By testing for usability in a ship's wheelhouse during different ambient conditions. All these models can fulfill most of the demands in maritime applications especially for navigation, ship automation and maritime surveillance.
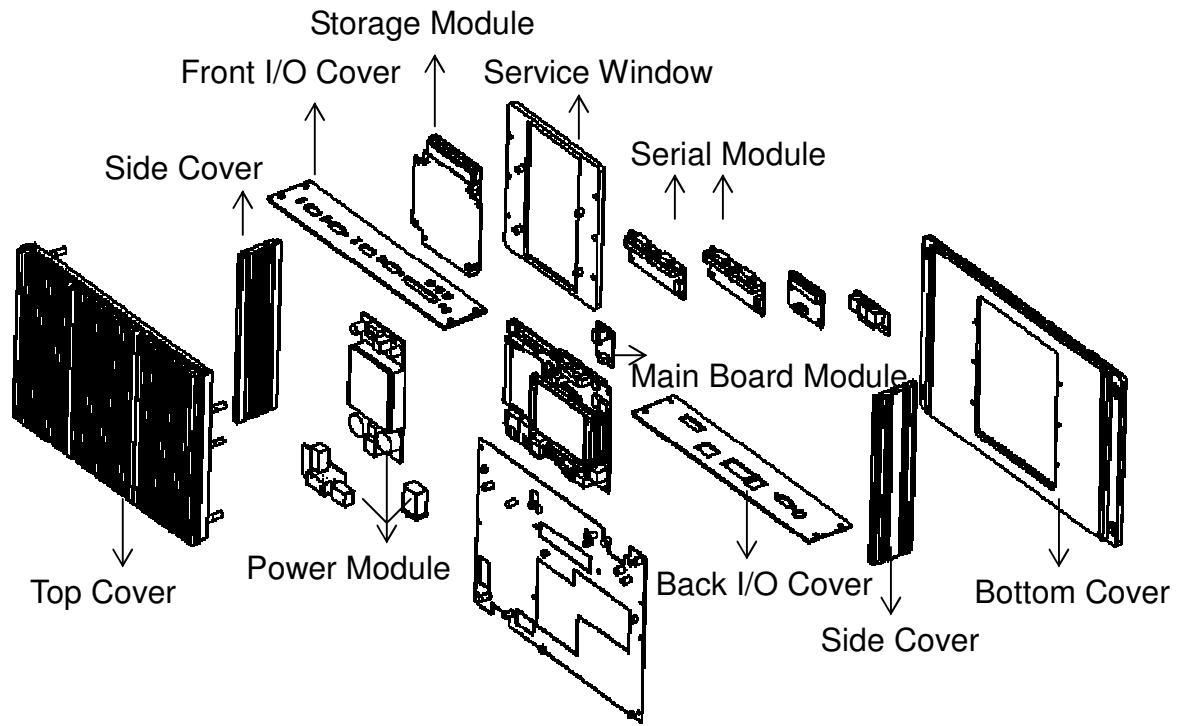

About this Manual

The users' manual introduces basic information about the product, electrical, mechanical and input / output signal specifications. All specifications are subject to change without prior notice due to manufacturing reasons. Check in the "Revision History" in front page of this manual for any update reference.

1.2 Basic Construction of EAC

The state of the art modulated technology can integrate all EAC components flexibly.
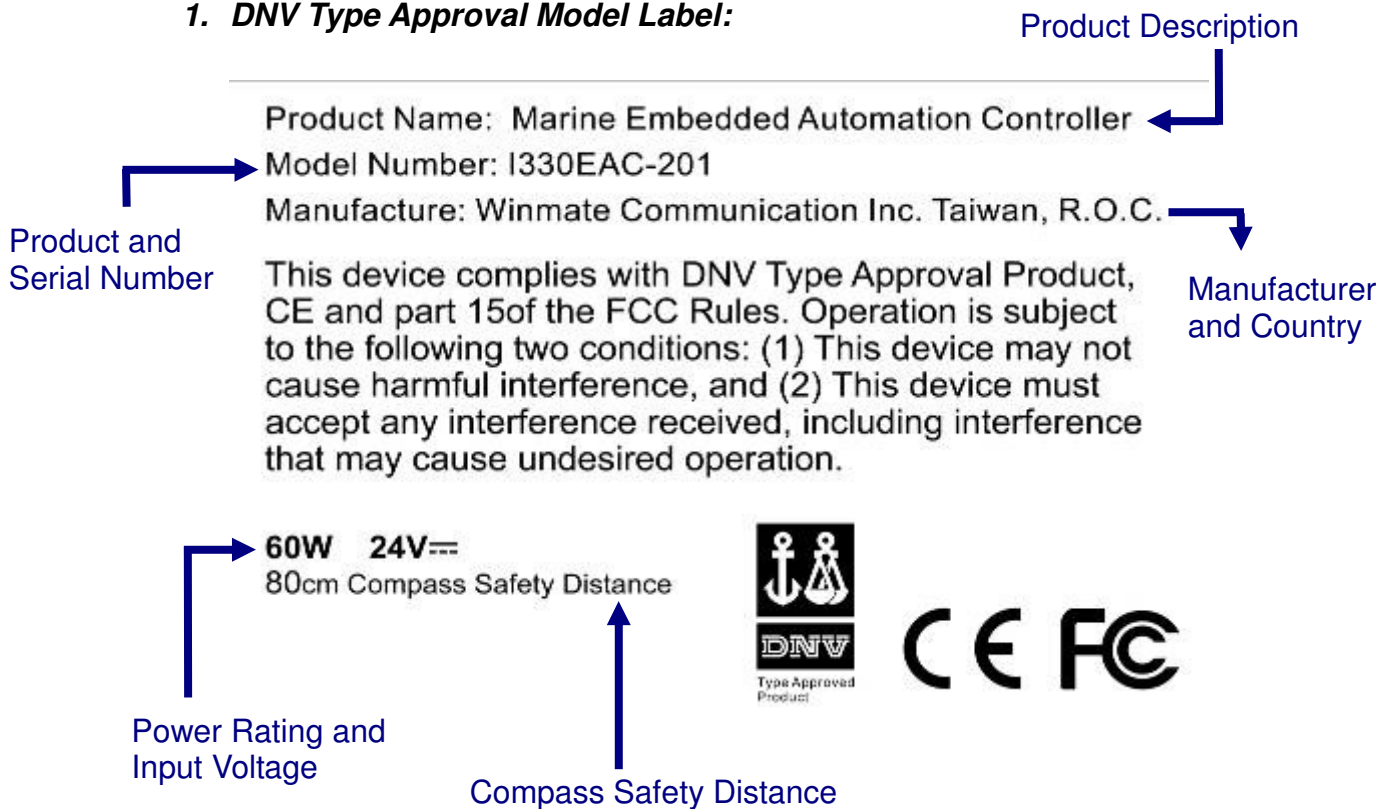
Storage Module

Front I/O Cover   Service Window

Side Cover   Serial Module

Main Board Module

Top Cover   Power Module   Back I/O Cover   Bottom Cover
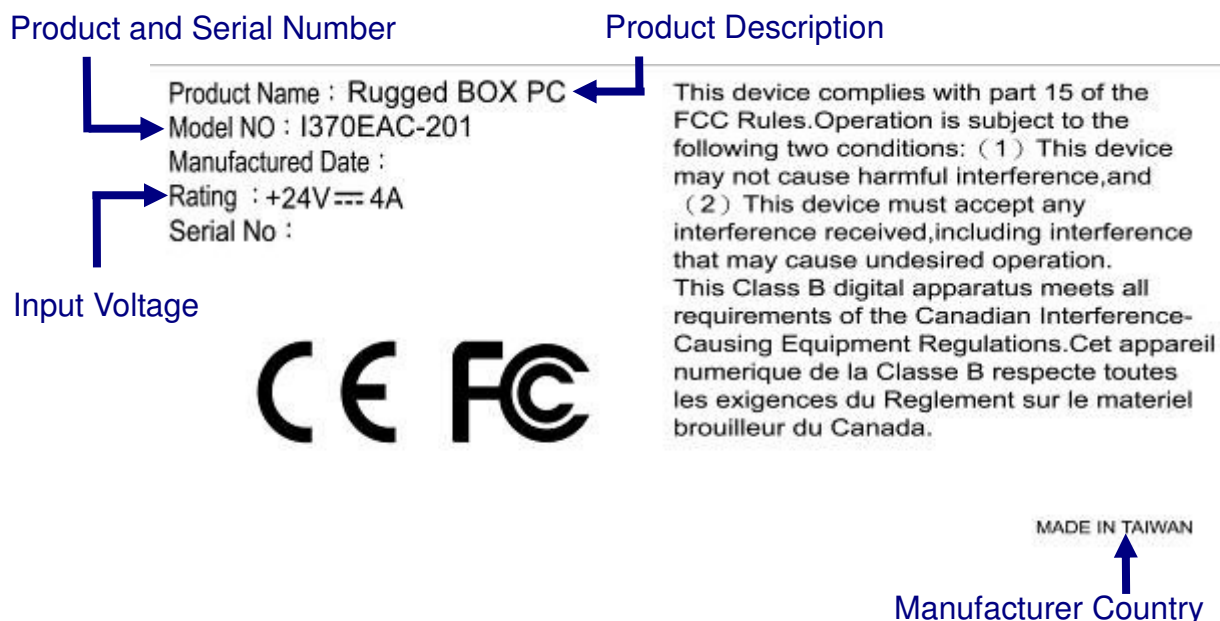
Side Cover

Figure 1.1 Basic Constructions

1.3 Certificate Serial Number Label

The certificate label and serial number for EAC products are described as below.
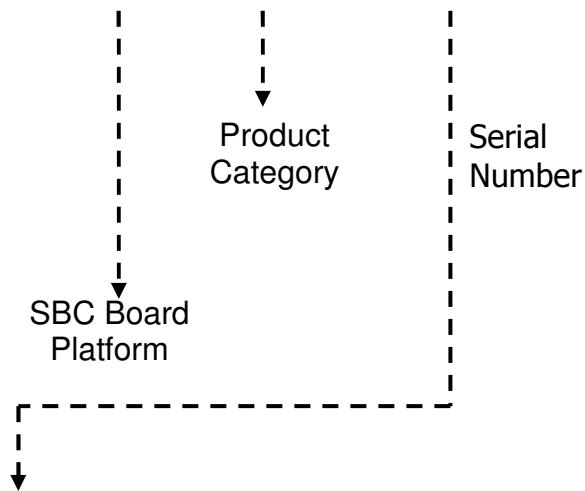
1. DNV Type Approval Model Label:

Product Description

Product and Serial Number

Product Name: Marine Embedded Automation Controller

Model Number: I330EAC-201

Manufacture: Winmate Communication Inc. Taiwan, R.O.C.

Manufacturer and Country

This device complies with DNV Type Approval Product, CE and part 15of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

60W 24V⎓
80cm Compass Safety Distance

Power Rating and Input Voltage

Compass Safety Distance

2. No DNV Type Approval Model Label

Product and Serial Number

Product Description

Product Name : Rugged BOX PC

Model NO : I370EAC-201

Manufactured Date :

Rating : +24V⎓ 4A

Serial No :

This device complies with part 15 of the FCC Rules.Operation is subject to the following two conditions: (1) This device may not cause harmful interference,and (2) This device must accept any interference received,including interference that may cause undesired operation.
This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.Cet appareil numerique de la Classe B respecte toutes les exigences du Reglement sur le materiel brouilleur du Canada.

Input Voltage

MADE IN TAIWAN

Manufacturer Country

3. *Model Serial Number (For EAC Box PC)*

I330 EAC – XXX

Product
Category

Serial
Number

SBC Board
Platform

Serial Number	Description
201	Std Package
202	w/ display extension
203	w/ PCI extension
204	w/ USB extension
205	w/ COM extension
206	w/ Fan extension
ID3	w/ NM10 chipset
IV3	w/ HM76 chipset

# CHAPTER 2
Installation
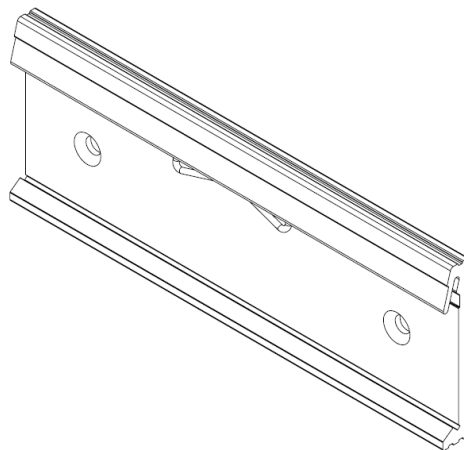
Chapter 2 Installation

2.1 General installation

The EAC can be applied for several different installation methods, Including desktop, wall mount, 100x100 VESA mount with screws only; 75x75 VEAS or DIN Rail with bracket. For DIN Rail mount is normally for the industrial fields use, it's easy to follow few steps to fix the display product in customer's fixture.
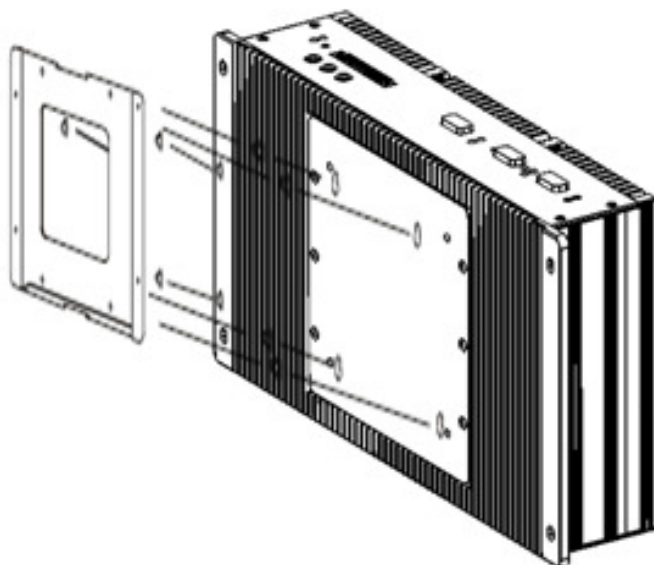
Check the mechanical and mounting concept as below first. The fixture dimension and mounting holes based on drawing.
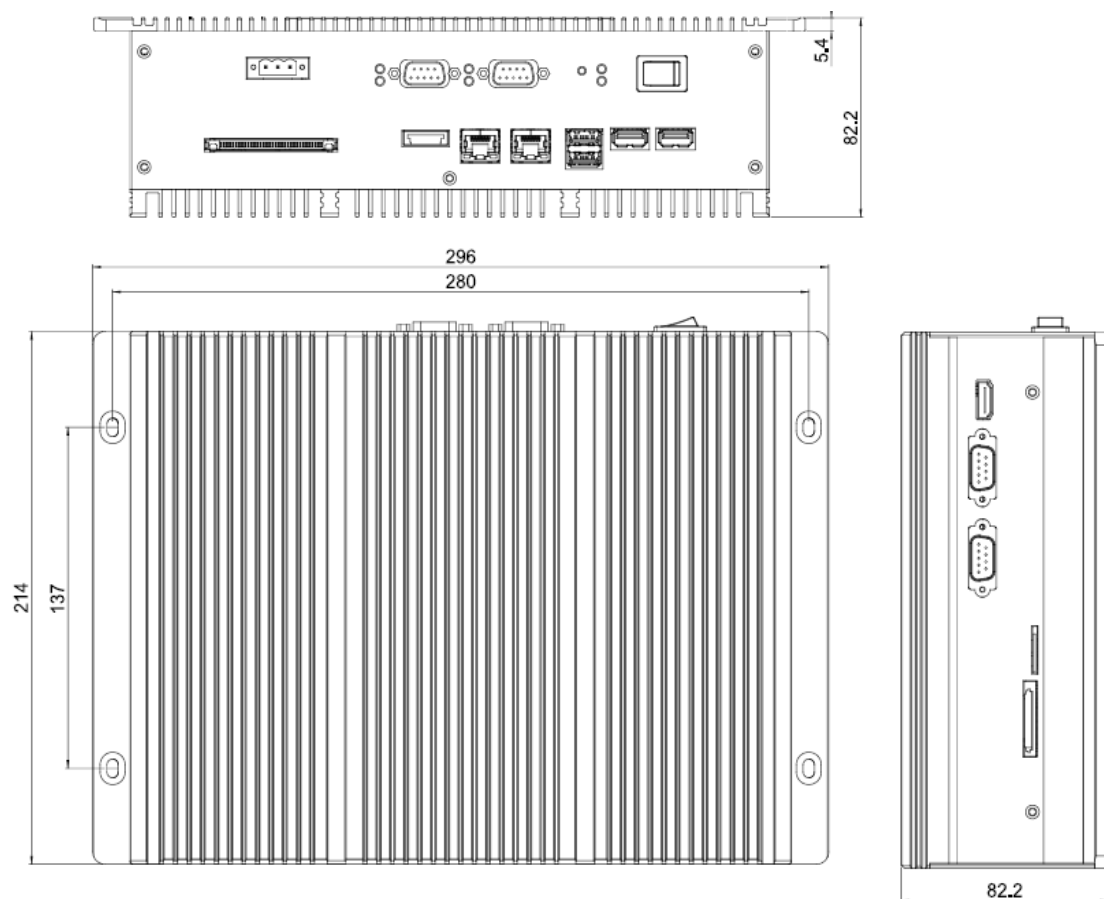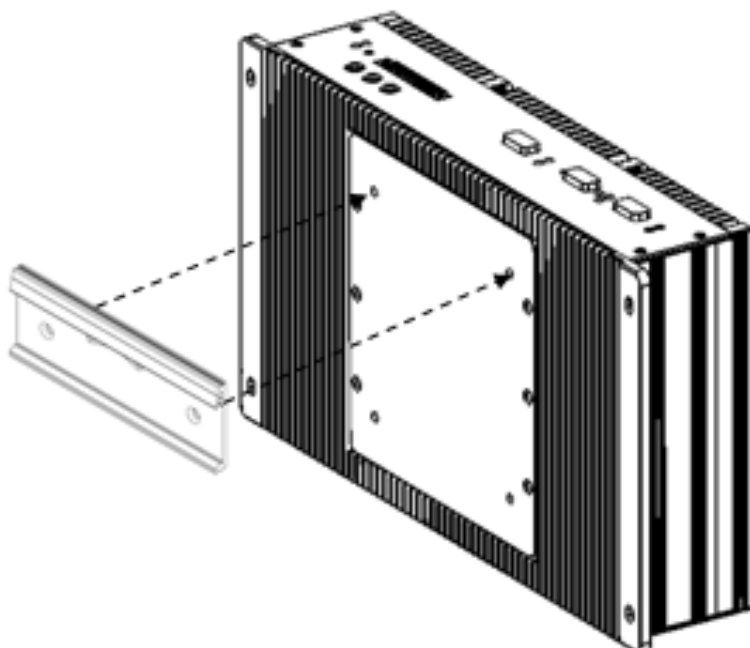
1. Align the EAC to the fixture on the back, and screw by four M4 x 8 mm above bolts with nuts.
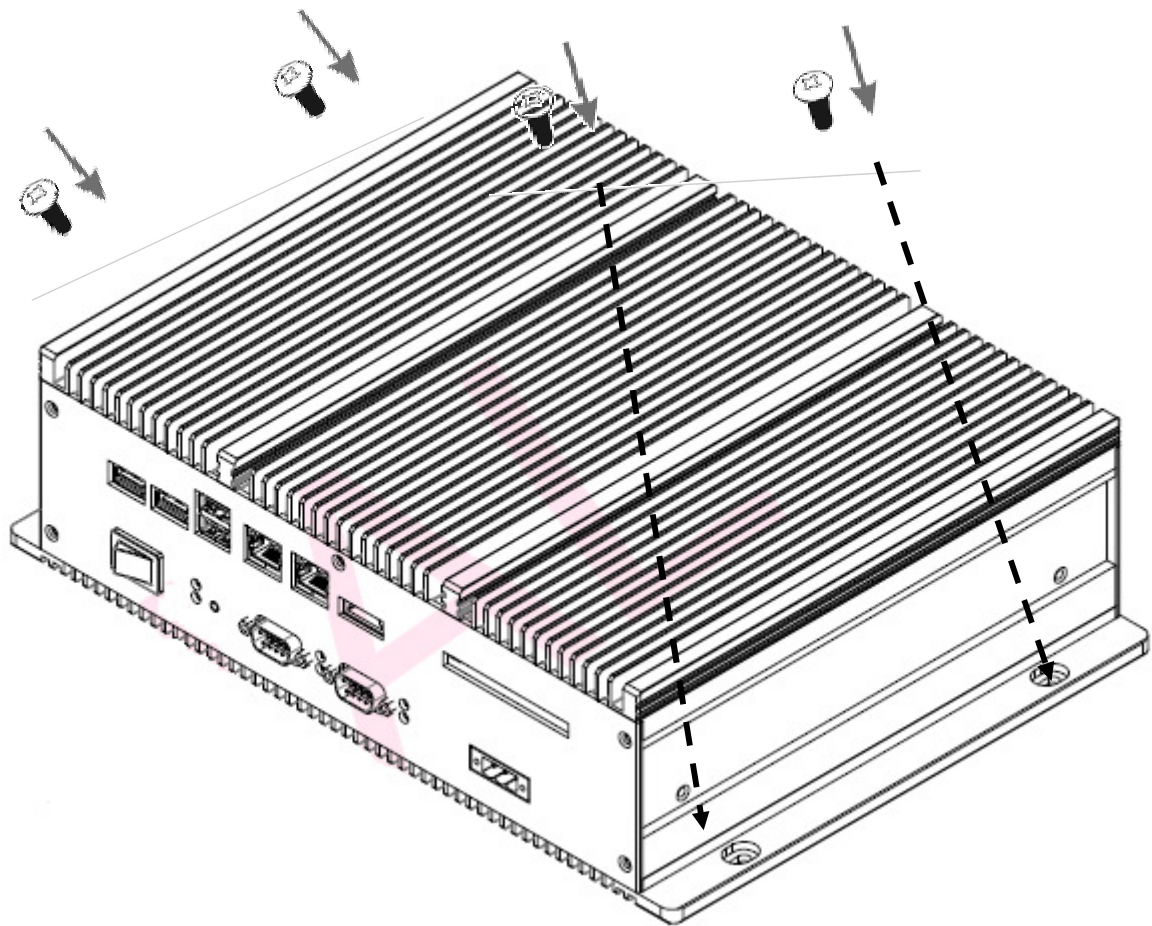
2. VESA mount with mounting kit using screw by four M4 x 8 mm above bolts with nuts by special request. (Non-DNV approved)

3.(Optional) Use two M4x 8mm bolts to drill through the DIN Rail mounting bracket into the mounting holes on the rear side of EAC 100x100 VEAS. **(Non-DNV approved)**
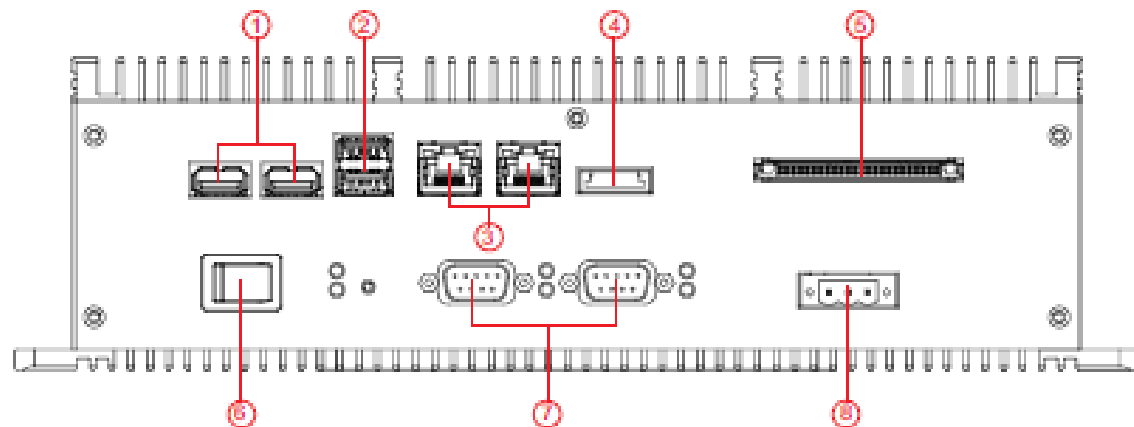
2.2 Installation Notice

1. Cable Connection Precaution

Make sure to use qualified shielded signal cable to connect to products. These cables including RS232, VGA, HDMI, LAN, USB cable should be connected inside the area as marked below. For DC power connection, please make sure the power cable is tightly connected by two screws of the terminal block.

IS81EAC-201

1. USB3.0
2. USB2.0
3. Giga LAN
4. eSATA

5. PCMCIA
6. Power Switch
7. Isolated RS422/485
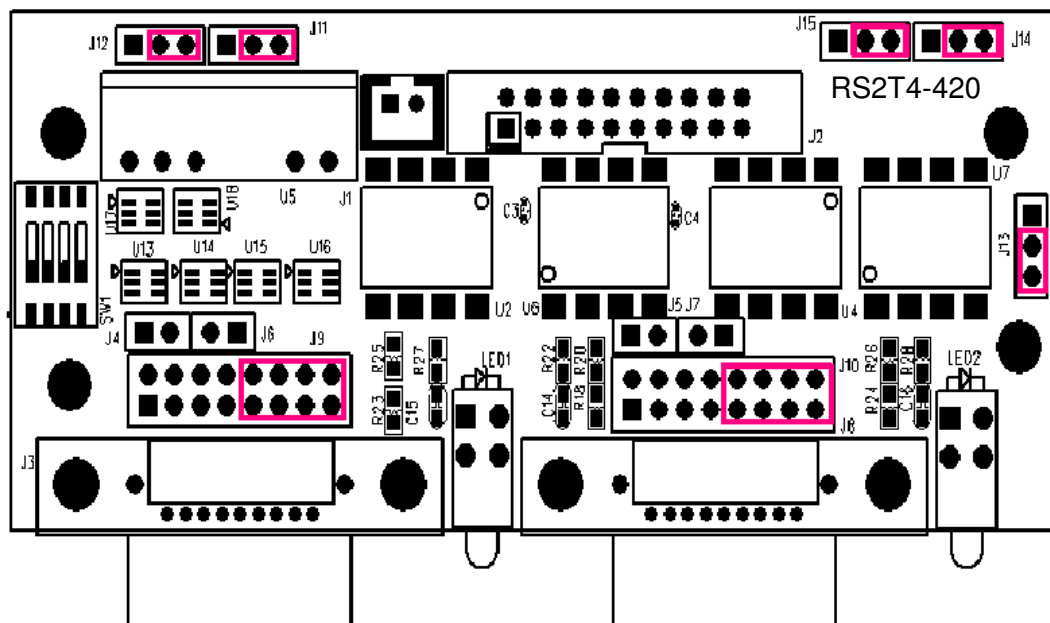8. 9~36 DC input
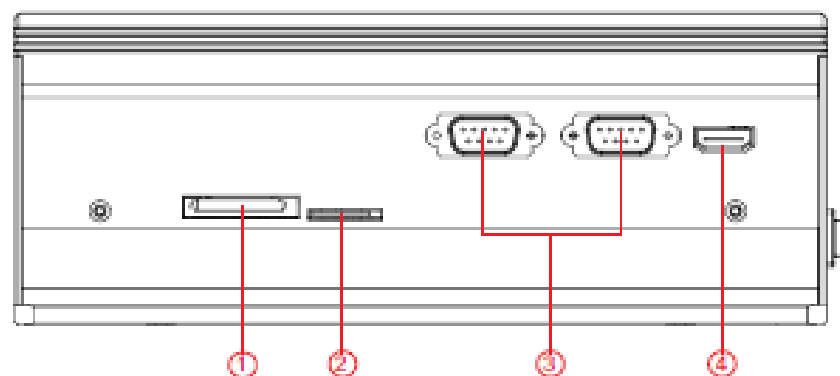
1. SD Card
2. SIM Card

3. RS232
4. HDMI

2. RS232 Jumper Settings

1.RS-485/RS-422
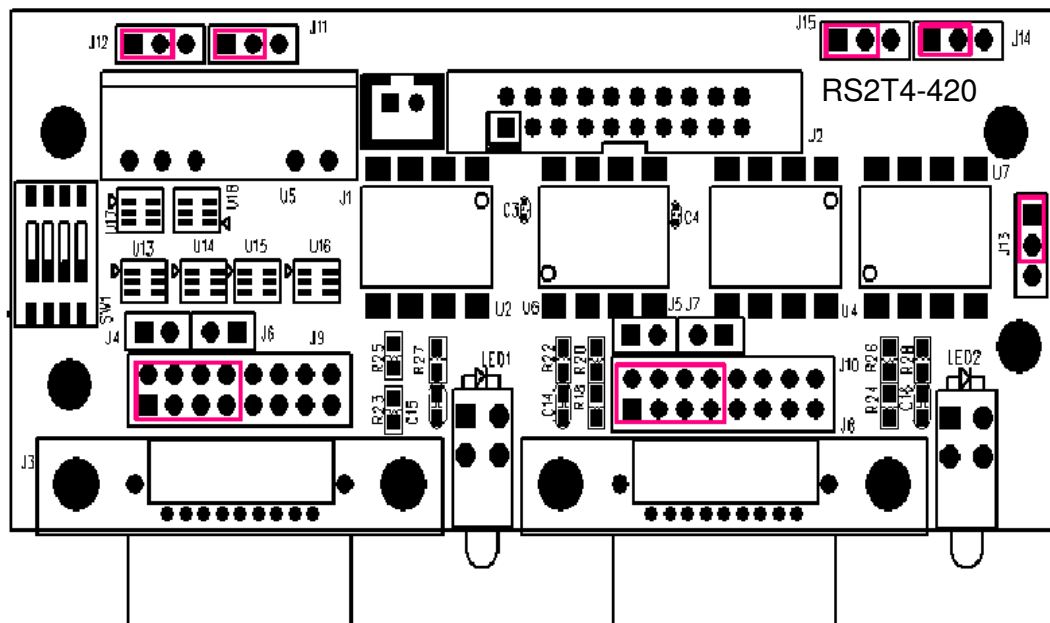
2.RS-232

SW1 (On Back side): COM3(J3) / COM4(J8) RS-422/485 Mode Switch

J3

J3 RS485

J3 RS422
Slave

J3 RS422
Master

J8

J8 RS485

J8 RS422
Slave

J8 RS422
Master
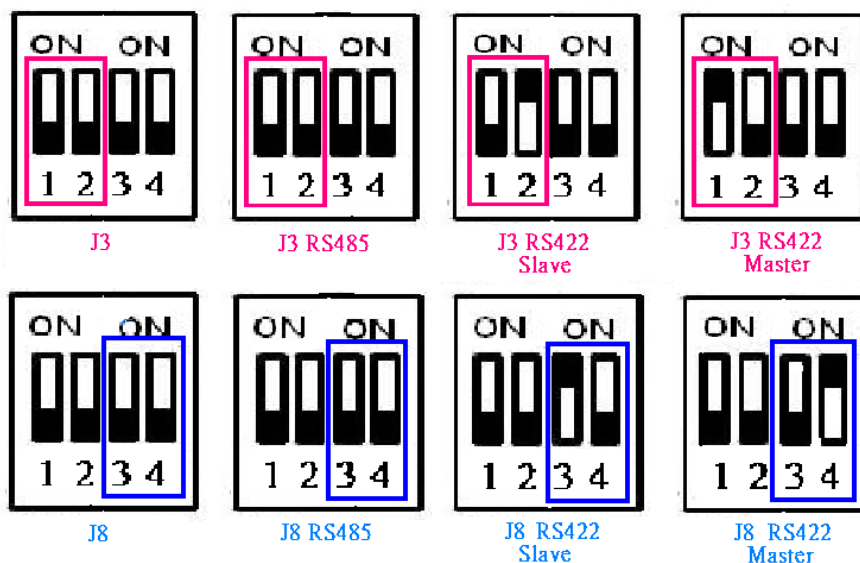
D-Sub 9P RS-232/RS-422/RS-485 (J3,J8)
Used connector: DB9 Female
Related connector: DB9 Male

Pin No.	Symbol	Description
1	P1	DCD/D-/TX-/RX-
2	P2	RXD/D+/TX+/RX+
3	P3	TXD/RX+/TX+
4	P4	DTR/RX-/TX-
5	GND	Ground
6	P6	DSR/NC
7	P7	RTS/NC
8	P8	CTS/NC
9	P9	RI/NC

Pins definition of J3 and J8 of 3 types

1. RS-485

Pin No.	Symbol	Description
1	P1	D-
2	P2	D+

2. RS-422 Master

Pin No.	Symbol	Description
1	P1	TX-
2	P2	TX+

3	P3	RX+
4	P4	RX-

3. RS-422 Slave

| Pin No.	Symbol	Description
1	P1	RX-
2	P2	RX+
3	P3	TX+
4	P4	TX-

CHAPTER 3
Operation the EAC

Chapter 3 Operation of the EAC

3.1 Input / Output Signals Overview

The EAC Box PCs designed with versatile computing functions fulfilling the embedded applications. The default function include COM ports (with isolated RS232/422/485), USB 3.0, power input connector, power switch, audio jack, HDMI, and GPIO

IS81EAC-201
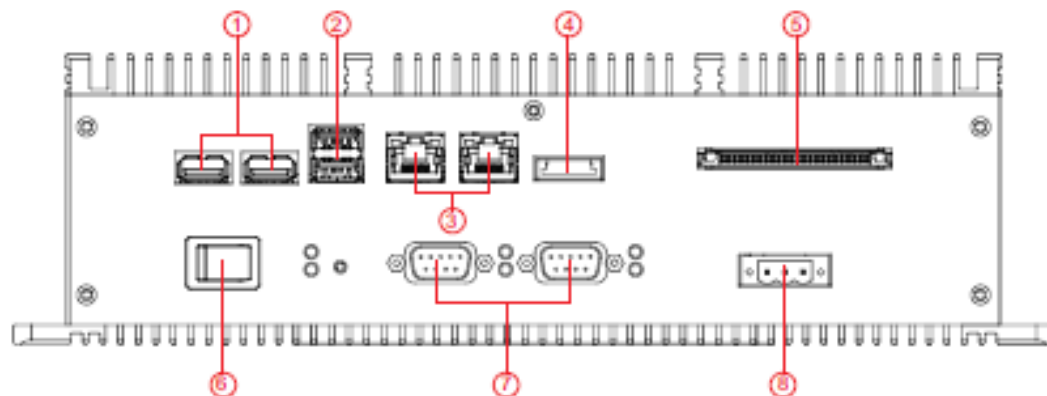
1. USB3.0
2. USB2.0
3. Giga LAN
4. eSATA
5. PCMCIA
6. Power Switch
7. Isolated RS422/485
8. 9~36 DC input
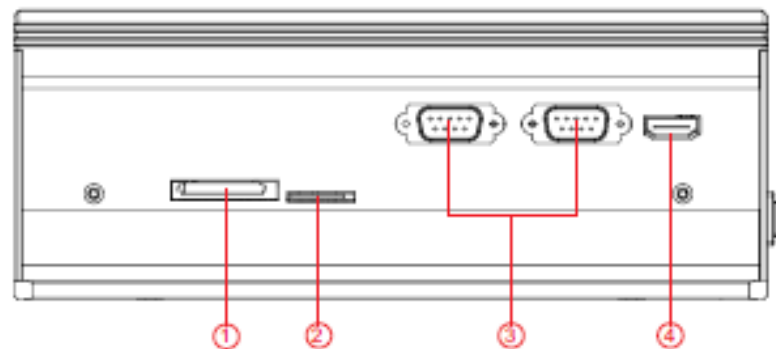
1. SD Card
2. SIM Card
3. RS232
4. HDMI

Power input (DC Version)
Default DC terminal block power source input compact design meets the maritime application. The terminal block is to be secured that the cable to screw terminal.

Serial ports for connection
The EAC support Rich COM ports (including isolated RS232/422/485) to satisfy the maritime accessories sensor units. Connect Standard D-SUB 9pin connector from accessory system to connect to the EAC to be a control center.

HDMI port connection
Use HDMI (Male) cable to connect to the display.

LAN port connection
The Panel PC supports one 10/100/1000 Mbps Ethernet interface for connecting to the internet.

USB port connection
Use standard USB type A cable to connect any device that use USB interface for expansion functions.

3.2 Starting the EAC & O/S Installation

1. *Connect the EAC to Monitor through HDMI cable.*

2. *Connect the power to DC source and turn on the power switch.*

3. *Press "DEL" to enter the CMOS setting and check the BIOS setup.*

4. *You may install your own O/S if it is not installed. When installing O/S for this EAC, please use external equipment including Keyboard and Mouse and external USB CD/DVD-ROM to run the O/S and Driver setting.*

5. *To install the drivers, the EAC comes with a User's Manual and Driver CD that contains most of the drivers and utilities of your needs. Following the step by step to install Driver (Please refer IS81 SBC User's Manual Chapter 3, 4, 5, 6) include: Chipset, HDMI, Audio, and Ethernet.*